

Preservation effect of organic acids on microbial, chemical and organoleptic parameters of chicken meat

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*Abstract

Background: Adding edible acids to food products not only has inhibitory effects on microorganisms, but also causes an appropriate flavor and color.

Objective: The aim of this study was to determine the preservation effect of organic acids on microbial, chemical and organoleptic parameters of chicken meat.

Methods: This experimental study was conducted in 200 samples of chicken meat in Koohdasht, 2014. The chicken thighs were sprayed with sterilized citric acid 1%, acetic acid 1%, and propionic acid 1%. The samples were packed and were kept at 4° C temperature, and were examined with 2 days intervals. The effect of different treatments were studied in terms of microbial (count of mesophilic aerobes, coliforms, psychotropic bacteria and anaerobes), chemical (pH, total volatile nitrogen), and organoleptic (drip loss, flavor, and color quality) parameters. Data were analyzed using ANOVA, LSD and Kruskal–Wallis tests.

Findings: The bacterial growth and shelf life were significantly different between the controls and the samples treated with acetic acid and propionic acid. The samples treated with citric acid were significantly different from the samples treated with acetic acid and propionic acid in terms of bacterial growth and shelf life. But there was no significant difference between the samples treated with acetic acid and propionic acid. With regards to the microbial, chemical, and organoleptic parameters, the controls, the samples treated with citric acid, and the samples treated with acetic acid and propionic acid were preserved for 4 days, 5 days, and 6-7 days, respectively.

Conclusion: With regards to the results, organic acids (1%) were effective in extending the shelf life of chicken meat without adverse effect on organoleptic parameters.

Keywords: Acetic Acid, Citric Acid, Chickens, Meat

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